**Name: …………………………………………………………… Index No. …………………………**

**School: …………………………………………………………. Candidate’s Sign. …………............**

**Date: ………………………………............................................**

**232/3**

**PHYSICS**

**PAPER 3**

**2021**

**TIME: 2 ½ HOURS**

**PAVEMENT FORM 4 TRIAL 2 EXAMINATION 2021/2022**

**Kenya certificate of secondary education (K.C.S.E)**

***Kenya Certificate of Secondary Education (K.C.S.E.)***

**Physics**

**Paper 3**

**INSTRUCTIONS TO CANDIDATES:**

* *Write your* ***name*** *and* ***index number*** *in the spaces provided above.*
* *Sign and write the* ***date*** *of the examination in the spaces provided above.*
* *You are supposed to spend the first* ***15*** *minutes of the* ***2 ½*** *hours allowed for this paper reading the whole paper carefully before commencing your work.*
* *Marks are given for a clear record of the observation actually made, their suitability, accuracy and the use made of them.*
* *Candidates are advised to record their observations as soon as they are made*
* *Non-programmable silent electronic calculators* ***may be*** *used.*
* *Candidates should check the question paper to ascertain that all the pages are printed and that no questions are missing.*

**For Examiner’s Use Only.**

|  |  |  |
| --- | --- | --- |
| Question | Maximum score | Candidate’s score |
| 1 | 20 |  |
| 2 | 20 |  |
| Total | 40 |  |

*This paper consists of* ***6*** *printed pages candidates should check the questions to ascertain that all pages are printed as indicated and that no questions are missing*

**Question1**

You are provided with the following apparatus

* One stand with the clamp and the boss
* One 100g mass
* 100cm long thread
* Two pieces of wood
* Stop watch

1. Set up the apparatus as shown below.

Piece of wood

Mass m

L

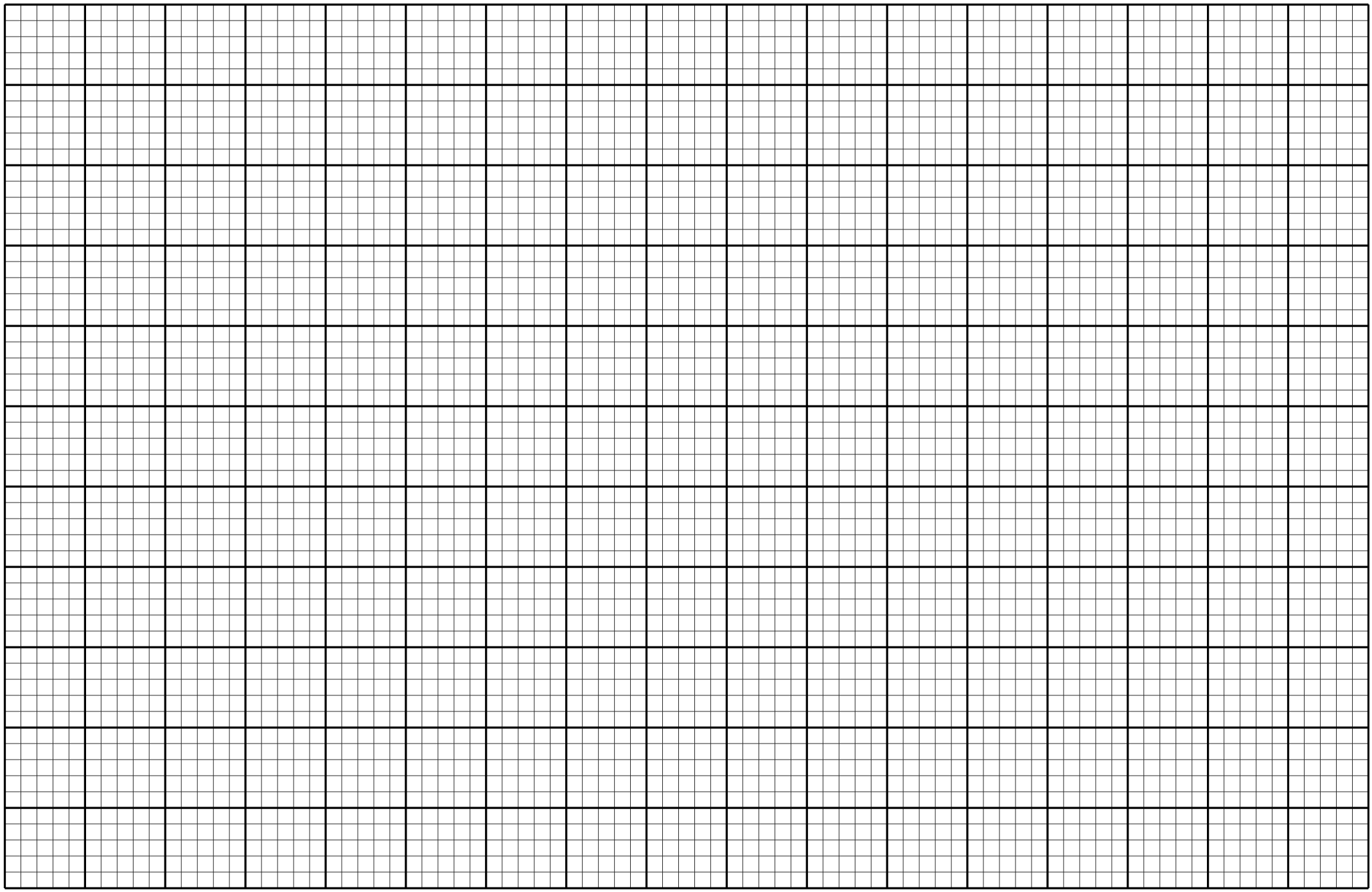
displacement

1. Adjust the length L of the thread so that . Give the mass m a slight displacement and release so that it oscillates freely. Measure the time t for twenty oscillations and record in the table below.
2. Repeat the procedure above for other values of L as shown and complete the table.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Length L (cm) | 70 | 60 | 50 | 40 | 30 | 20 |
| Length L(m) |  |  |  |  |  |  |
| Time for 20 oscillation |  |  |  |  |  |  |
| Period T(s) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**(9 marks)**

1. On the grid provided plot a graph of against L(cm) **(5 marks)**



1. Determine the slope of the graph **(3 marks)**

........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

........................................................................................................................................................................

1. Given that determine the value of the constant **g** **(3 marks)**

........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

.  **QUESTION 2**

***You are provided with the following apparatus***

* A wire mounted on a mm scale
* A voltmeter (0-3 or 0- 5.v)
* An ammeter
* A switch
* Two dry cells and a cell holder.
* Six connecting wire with at least two crocodile clips.
* A micrometer screw gauge

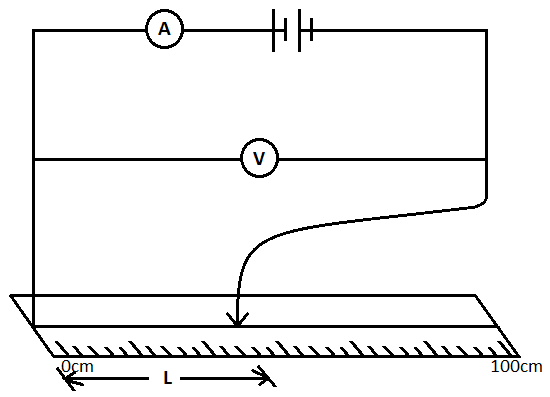
**Procedure**.

1. Using the micrometer screw gauge, determine the diameter d of the wire at three different points.

d1=……………………………………mm, d2=……………………………….mm, d3…………………………………… mm,

Average d = ………………………………..m **(2 marks)**

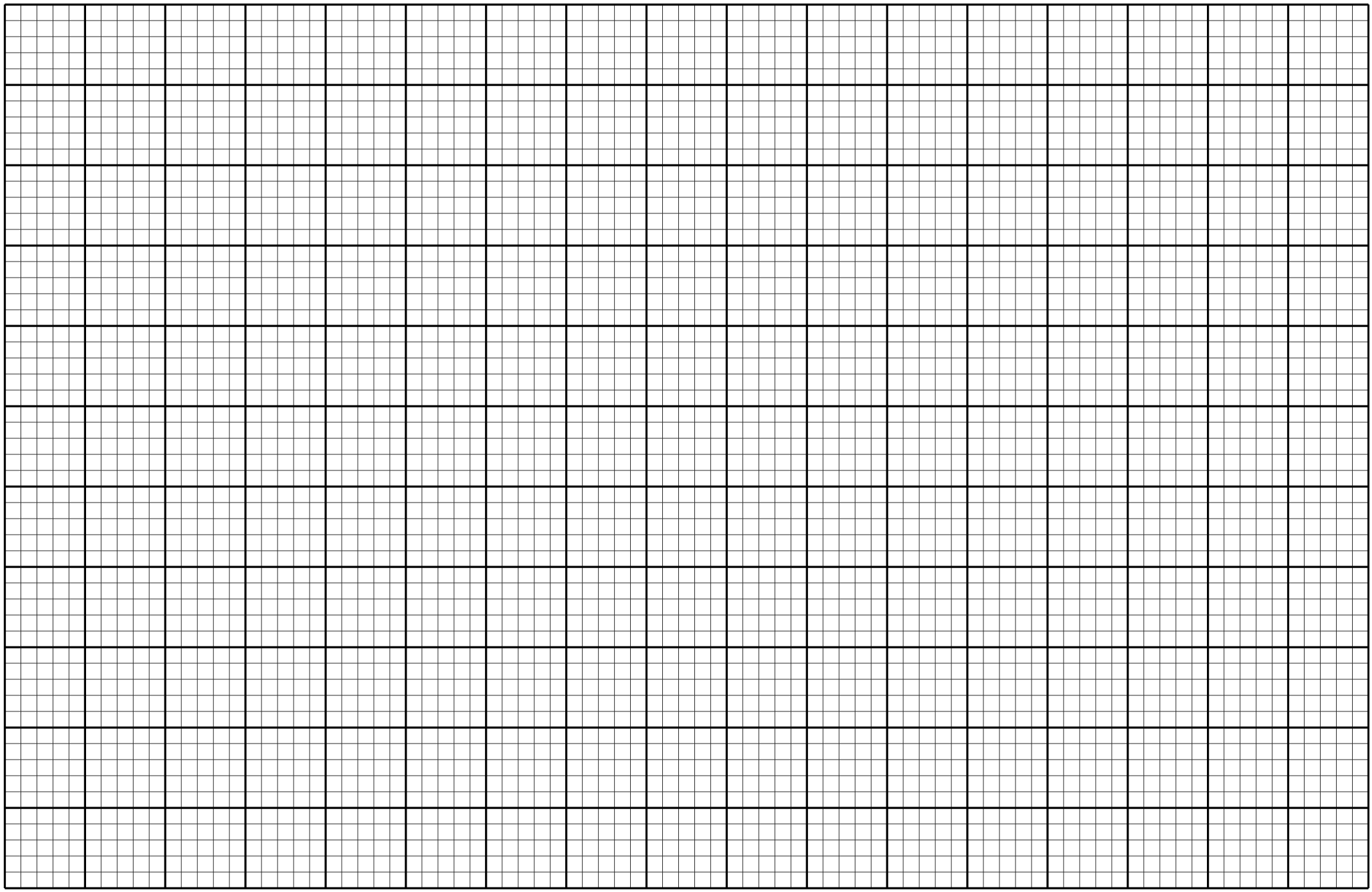
1. Calculate the cross- sectional area A of the wire in m2 **(2 marks)**
2. Set up the circuit as shown below.



1. Vary the length by using the crocodile clip along the wire from (when L =0). Record the voltmeter and ammeter readings in the table below. **(5 marks)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Length L (cm) | 80cm | 60cm | 40cm | 20cm | 0cm |
| Current I (A) |  |  |  |  |  |
| Voltage (V) |  |  |  |  |  |

1. Plot the graph of voltage V against current I **(A)**  **(5 marks)**



1. Determine the slope of the graph. **(2 marks)**

........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................ ..................................................................................................................................................................

1. Given that **,**
2. calculate the internal resistance of the cell. **(2 marks)**

.........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

1. Determine the emf (E) of the battery. **(2marks)**

..........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................